



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 W. JACKSON BLVD
CHICAGO, IL 60604

US EPA RECORDS CENTER REGION 5



475409

MEMORANDUM

DATE:

SUBJECT: Action Memorandum: Request for Approval of a Time-Critical Removal Action and for an Exemption to the 12-month Statutory Limit at the Inverse Investments Site located in McHenry County, Illinois (Site ID # C5T7)

FROM: Leonard Zintak, On-Scene Coordinator *MWR for*
Emergency Response Section 3

THRU: Samuel Borries, Chief *Samuel Borries*
Emergency Response Branch 2

TO: Richard C. Karl, Director
Superfund Division

I. PURPOSE

The purpose of this Action Memorandum is to document verbal approval for emergency expenditures and to seek approval of an additional expenditure for mitigation of threats to public health and the environment at the Inverse Investments Site (Inverse Site or the Site) in McHenry County, Illinois. In June 2013, the Chief of the Emergency Response Branch 2 verbally approved a \$2,500 emergency expenditure for provision of bottled water to residents with contaminated private wells. This Action Memorandum requests and seeks your approval to expend up to an additional \$403,070, for a total of \$405,570, in order to characterize and mitigate threats to public health, welfare, and the environment posed by the presence of elevated levels of volatile organic compounds (VOCs) in residential drinking water wells. In addition, this memorandum requests an exemption to the 12-month statutory limit to continue response actions at the Site.

The actions proposed herein will mitigate the threats by providing temporary bottled water and by providing permanent City of McHenry water service to the affected homes by extending a water main and connecting the homes to that water main. The McHenry County Health Department and the Illinois Environmental Protection Agency (IEPA) have also determined that VOCs detected in Site drinking water wells exceed the legally enforceable drinking water Maximum Contaminant Levels (MCLs), set forth at 40 CFR § 141.61, and pose a public health

hazard to the residents. Due to the public health threats at the Site, EPA considers this removal action time-critical.

This Action Memorandum serves as approval for expenditures by EPA, as the lead technical agency, to take actions described herein to abate the imminent and substantial endangerment posed by hazardous substances at the Site. The proposed actions to mitigate the hazardous substances discussed in this Action Memorandum will be taken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.415.

II. SITE CONDITIONS AND BACKGROUND

SEMS (CERCLIS) ID: ILN 000 510 958

RCRA ID: N/A

State ID: N/A

Category: Time-critical

A. Site Description

1. Physical location

The Inverse Site is located in a mixed residential and commercial neighborhood in and adjacent to the City of McHenry, McHenry County, Illinois and is roughly bounded by Illinois Route 120 and athletic fields to the north, commercial facilities and Northside Avenue to the east, and the Fox River to the south and west. The likely source of the Site contamination is a dry cleaning facility that was located at 3004 West Illinois Route 120, McHenry, Illinois. The dry cleaner is no longer operating at that property, and a working Enterprise Rent-A-Car facility is now located there.

EPA Region 5 conducted an Environmental Justice (EJ) analysis for the Inverse Site. Screening of the surrounding area used Region 5's EJ Screen Tool (which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT)). Region 5 has reviewed environmental and demographic data for the area surrounding the Site and has determined that there is a low potential for EJ concerns at this location.

2. Site characteristics

The Inverse Site consists of a groundwater plume with contaminated residential private wells in a mixed residential and commercial neighborhood in and adjacent to the City of McHenry, McHenry County, Illinois.

3. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

In the Inverse Site groundwater plume area, residential wells contain perchloroethylene (PCE), trichloroethylene (TCE) and vinyl chloride at concentrations exceeding the EPA Maximum Contaminant Levels (MCLs) and the Removal Management Levels (RMLs) for all three contaminants. Therefore, actual contamination of drinking water supplies exists. Most of the residences and commercial business within the study area use private wells as a drinking water source.

4. Removal site evaluation

Between February 2006 and January 2012, the IEPA and McHenry County Department of Health (MCDOH) collected groundwater samples from Site residences. Results for samples collected from several private residential wells at or near the Site indicated the presence of chlorinated solvents at concentrations above the EPA drinking water MCLs, including PCE and TCE. Other VOCs were detected at concentrations below the EPA MCLs, including cis-1,2-dichloroethene (DCE); methyl-t-butyl-ether (MTBE); and vinyl chloride. The IEPA also collected groundwater samples throughout the Site using a Geoprobe® unit, and sampling results indicated additional locations of chlorinated solvent contamination.

According to the IEPA, groundwater sampling results from the area indicate the presence of two plumes of groundwater contamination east of the Fox River near Illinois Route 120. The potential sources of groundwater contamination are (1) 3004 Illinois Route 120, the location of a former dry cleaner (currently a rental car facility) and (2) a source near a former auto shop at 3103 West Lincoln Road. Both plumes are situated in a mixed residential and commercial area. The groundwater plume from the former dry cleaner is associated with Inverse Investments, which owned the property where the dry cleaner was located. On November 19, 2012, the IEPA requested assistance from the EPA to conduct additional residential groundwater sampling at the location of the former dry cleaner (the Inverse Investments Site) and, where necessary, provide assistance to residents impacted by contaminated groundwater.

5. NPL status

The Inverse Investments Site is not on the NPL. Region 5 does not intend to propose the Site for inclusion on the NPL at this time.

6. Maps, pictures and other graphic representations

A figure detailing the location of the Site is included in the attached site map (Attachment 3).

B. Other Actions to Date

1. Previous actions

Between December 2012 and September 2013 four rounds of quarterly private drinking water well sampling were conducted. At 5 of the 11 properties sampled, at least one of the following

VOCs was detected above laboratory reporting limits: cis-1,2-DCE; MTBE; PCE; ; TCE; and vinyl chloride. The VOC results were compared to EPA MCLs and RMLs. VOCs detected at concentrations exceeding MCLs and RMLs are summarized below:

- **House 1** - For all three sampling rounds, PCE and TCE concentrations exceeded the EPA MCL for both compounds of 5 micrograms per liter ($\mu\text{g/L}$). In addition, for at least one sampling round, PCE and TCE concentration exceeded the EPA RML of 100 $\mu\text{g/L}$ for PCE and 2.6 for TCE. Specifically, PCE was detected at 86, 90, and 110 $\mu\text{g/L}$ in three samples, and TCE was detected at 8.1, 8.5, and 12 $\mu\text{g/L}$. Bottled water is being provided to this residence.
- **House 2** – In two sampling rounds, vinyl chloride concentrations exceeded the EPA MCL of 2 $\mu\text{g/L}$ and the RML of 1.5 $\mu\text{g/L}$. Specifically, vinyl chloride was detected at 2.8 and 3.4 $\mu\text{g/L}$. After the first sampling round, EPA provided bottled water to this residence. Bottled water is being provided to this residence.
- **House 3** – In one sampling round, vinyl chloride concentrations exceeded the RML of 1.5 $\mu\text{g/L}$. Specifically, vinyl chloride was detected at 1.8 $\mu\text{g/L}$. Bottled water is being provided to this residence.

In addition to sampling private drinking water wells, IEPA conducted a Geoprobe[®] investigation in October 2013 to determine the source of the groundwater contamination. Also, EPA sampled existing monitoring wells on the Inverse property at 3004 West Illinois Route 120. Sampling results of the groundwater on the Inverse property and downgradient toward the contaminated residences indicate that the source of contamination is the Inverse property. Specifically, the highest concentrations found in the monitoring wells on the Inverse property for the three chlorinated VOCs exceeding MCLs and RMLs are 20,000 $\mu\text{g/L}$ PCE; 3,200 $\mu\text{g/L}$ TCE; and 3,000 $\mu\text{g/L}$ vinyl chloride.

2. Current actions

Bottled drinking water is currently being provided to residents of three homes in the area of the Inverse plume of contamination. In the groundwater plume area, residential drinking water wells contain PCE, TCE, and vinyl chloride at concentrations exceeding the EPA MCLs of 5 $\mu\text{g/L}$ for PCE and TCE and the EPA MCL of 2 $\mu\text{g/L}$ for vinyl chloride. Also, the wells exceed the RMLs of 100 $\mu\text{g/L}$ for PCE, 2.6 $\mu\text{g/L}$ for TCE, and 1.5 $\mu\text{g/L}$ for vinyl chloride.

C. State and Local Authorities' Roles

1. State and local actions to date

Between February 2006 and January 2012, the IEPA and McHenry County Department of Health (MCOH) collected groundwater samples from residences located at the Site. Analytical results of samples collected from several private residential wells indicated the presence of chlorinated solvents at concentrations above the EPA drinking water MCLs, including PCE, TCE, and vinyl chloride. Other VOCs were detected at concentrations below the EPA MCLs,

including cis-1, 2-DCE and MTBE. IEPA collected groundwater samples at various locations on the Site using a Geoprobe® unit. The sampling results indicated chlorinated solvent contamination.

2. Potential for continued State/local response

Given the exigency of the situation, neither the state nor local governments have the funds to conduct a time-critical removal action in a timely manner to provide an alternate source of drinking water to residents with contaminated wells.

III. THREATS TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Site present a substantial threat to the public health or welfare, and the environment, and meet the criteria for a time-critical removal action as provided for in the NCP, 40 CFR § 300.415(b)(2). These criteria include, but are not limited to, the following:

- **Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants**

During the Site assessment, samples from three drinking water wells at the Site contained PCE, TCE, and vinyl chloride at concentrations exceeding the EPA MCLs and the RMLs for these contaminants. Therefore, people living at these residences within the Site currently or in the past could have been exposed to these contaminants. Below is a summary from the Agency for Toxic Substances and Disease Registry toxicological profiles of probable health effects for human exposure to PCE and TCE.

PCE: High concentrations of PCE can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally exposed to high concentrations or have intentionally used PCE to get a "high." The U.S. Department of Health and Human Services (DHHS) has determined that PCE may reasonably be anticipated to be a carcinogen. PCE has been shown to cause liver tumors in mice and kidney tumors in male rats (AR #4).

TCE: Breathing small amounts of TCE may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Breathing large amounts of TCE may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage. Drinking large amounts of TCE may cause nausea, liver damage, unconsciousness, impaired heart function, or death. Drinking small amounts of TCE for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear. Skin contact with TCE for short periods may cause skin rashes. Some studies of people exposed over long periods to high levels of TCE in drinking water or in workplace air have found evidence of an increased risk of cancer (AR #7).

Vinyl Chloride: Studies in animals show that extremely high levels of vinyl chloride can damage the liver, lungs, and kidneys. These levels also can damage the heart and prevent blood clotting. The effects of ingesting vinyl chloride are unknown. Results from several studies suggest that breathing air or drinking water containing moderate levels (100 parts per million or more) of vinyl chloride could increase the risk of cancer. The DHHS has determined that vinyl chloride is a known carcinogen. The International Agency for Research on Cancer has determined that vinyl chloride is carcinogenic to people, and the EPA determined that vinyl chloride is a human carcinogen.

- **Actual or potential contamination of drinking water supplies or sensitive ecosystems**

As mentioned above, during the Site assessment, samples from Site residential wells contained PCE, TCE, and vinyl chloride at concentrations exceeding the EPA MCLs and RMLs for these VOCs. Therefore, actual contamination of drinking water supplies exists. Most of the residences and commercial businesses within the study area use private wells as a drinking water source.

- **Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released**

Heavy rains or river flooding could cause contaminated groundwater to migrate outside the area of concern.

- **The availability of other appropriate federal or state response mechanisms to respond to the release.**

Given the exigencies of the situation, no other local or state response mechanism is available to respond in a timely manner to provide an alternate source of drinking water to residents with contaminated wells.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the known and suspected hazardous substances on Site, and the potential exposure pathways described in Sections II and III above, and the actual or threatened releases of hazardous substances from this Site, there is an imminent and substantial endangerment to public health, or welfare, or the environment that must be addressed by implementing the response actions selected in this Memorandum.

V. EXEMPTION FROM STATUTORY LIMITS

Section 104(c) of CERCLA, as amended, limits a Federal emergency response to a time period not to exceed 12-months or \$2 million unless the three criteria below are met. Levels of hazardous substances in drinking water exceed the MCLs for PCE and TCE at the Site and the potential exists that these hazardous substances will continue to migrate off the Site. These Site conditions warrant granting an exemption from the 12-month time frame.

The following three factors continue to be present at the Site:

A. There is an immediate risk to public health or welfare or the environment;

The Inverse Site is located in a residential area that is partially unincorporated. Three private drinking water wells have been confirmed to be contaminated with PCE, TCE, and vinyl chloride at concentrations that exceed MCLs and RMLs for drinking water. In addition, the potential exists for the inhalation of vapors by these residents during bathing, washing dishes, or washing hands. The potential exists that additional wells within the ground water plume may become contaminated. Continued sampling of residential wells will be required to track the movement of the ground water plume.

B. Continued response actions are immediately required to prevent, limit, or mitigate an emergency;

EPA actions are required to complete the installation of City water service to the affected homes. EPA will be sampling residential wells adjacent to the groundwater plume to monitor any movement or changes in ground water quality or flow which could impact the effectiveness of the remedy.

C. Assistance will not otherwise be provided on a timely basis.

IEPA referred the Inverse Site to EPA for assessment on November 12, 2012. No other state or local response mechanism is available to respond in a timely manner to provide an alternate source of drinking water to residents with contaminated wells.

Based on Site conditions documented in this Action Memo, the above three factors are present at the Site and an exemption from the 12-month time limit is requested.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Actions

1. Proposed action description

The response actions described in this memorandum directly address actual or potential releases of hazardous substances from the Site which pose an imminent and substantial endangerment to public health, or welfare, or the environment. Site removal activities will include:

- 1) Development and implementation of a Site Health and Safety Plan;
- 2) Continuing bottled water delivery to residents with contaminated wells until an alternative clean water source is provided;
- 3) Providing City of McHenry municipal water service to the homes in the groundwater plume area by extending water mains and by installing service connections to the homes;

- 4) Disabling the residential wells after City water service is provided as a result of the activities in paragraph 3 above;
- 5) Monitor effectiveness of implemented remedy by conducting residential well sampling at homes adjacent to the groundwater plume for a period not to exceed 12 months;
- 6) Transporting and disposing of drummed monitoring well purge water at an approved off-site disposal facility; and
- 7) Take any other response actions to address any release or threatened release of a hazardous substance, pollutant or contaminant that the EPA OSC determines may pose an imminent and substantial endangerment to public health or the environment.

The proposed removal action will be conducted in a manner not inconsistent with the NCP. The OSC has initiated planning for provision of post-removal Site control consistent with the provisions of Section 300.415(l) of the NCP. The threats posed by uncontrolled substances considered hazardous meet the criteria listed in NCP § 300.415(b)(2), and the response actions proposed herein are consistent with any long-term remedial actions which may be required.

B. Off-Site Rule

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

1. Contribution to remedial performance:

The proposed action will not impede future actions based on available information.

2. Engineering Evaluation/Cost Analysis (EE/CA)

Not Applicable

3. Applicable or relevant and appropriate requirements (ARARs)

Removal Actions conducted under CERCLA are required to attain applicable or relevant and appropriate requirements (ARARs) to the extent practicable. In determining whether compliance with ARARs is practicable, the OSC may consider appropriate factors, including the urgency of the situation and the scope of the removal action to be conducted. EPA will comply with all ARARs of Federal and State laws to the extent practicable considering the time-critical exigencies of the circumstances. An e-mail was sent by EPA to Bruce Everetts of the IEPA on April 10, 2014 requesting that IEPA identify any State ARARs that may apply.

C. Project Schedule

The removal action will require approximately six additional months to complete. Tasks will not be continuous and will involve installation of City of McHenry municipal water service to affected homes, monitoring, sampling and oversight as necessary.

D. Estimated Costs

The proposed scope of work includes installation of approximately 800 linear feet of water main, water service connections for up to six residences, abandonment of existing private wells, and restoration of pavement and landscaping as necessary. Bottled water delivery to the residences will be discontinued once the City water service is installed and is functioning properly.

| REMOVAL ACTION PROJECT CEILING ESTIMATE | |
|---|------------|
| <u>Extramural Costs:</u> | \$ 338,700 |
| <u>Regional Removal Allowance Costs:</u> | |
| Cleanup Contractor Costs | |
| <u>Other Extramural Costs Not Funded from the Regional Allowance:</u> | \$ 30,000 |
| START | |
| Subtotal | \$ 368,700 |
| Contingency costs (10% Subtotal) | \$ 36,870 |
| Total Removal Project Ceiling | \$ 405,570 |

An Independent Government Cost estimate is included in Attachment 4.

The response actions described in this memorandum directly address the actual or threatened release at the Site of a hazardous substance, or of a pollutant, or of a contaminant which may pose an imminent and substantial endangerment to public health or welfare or to the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances and pollutants or contaminants documented on Site, the potential exposure pathways to nearby populations described in Sections II, III and IV above, and the actual or threatened release of hazardous substances and pollutants or contaminants from the Site, present an imminent and substantial endangerment to public health, welfare, or the environment that will be properly addressed and alleviated by implementing the response actions selected in this Action Memorandum.

VIII. OUTSTANDING POLICY ISSUES

None

IX. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$681,275¹.

| | | | |
|-------------------------|---|--------------------------|---------------------------|
| Direct Costs | + | (Indirect Costs) | = Estimated EPA Costs for |
| | | | a Removal Action |
| (\$ 405,570 + \$30,000) | + | [(56.41%) x (\$435,570)] | = \$ 681,275 |

X. RECOMMENDATION

This decision document represents the selected removal action for the Inverse Investments Site in McHenry County, Illinois. It was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site (Attachment 1). Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal, and I recommend your approval of the removal action and 12-month exemption documented in this Action Memorandum.

The total removal action project ceiling, if approved, will be \$405,570. Of this, an estimated \$375,570 may be used for cleanup contractor costs. You may indicate your decision by signing below.

APPROVE: _____

Rachel C. Kelle
Director, Superfund Division

DATE: 6-27-14

DISAPPROVE: _____

Director, Superfund Division

DATE: _____

¹Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

Enforcement Addendum

- Attachments
1. Administrative Record Index
 2. Detailed Cleanup Contractor Cost Estimate
 3. Site Map
 4. Independent Government Cost Estimate

cc: S. Fielding, EPA 5202 G (email: Fielding. Sherry/@epa.gov)
V. Darby, U.S. DOI, **w/o Enf. Addendum**
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BCC PAGE HAS BEEN REDACTED

**NOT RELEVANT TO SELECTION
OF REMOVAL ACTION**

**ENFORCEMENT ADDENDUM
HAS BEEN REDACTED – FOUR PAGES**

**ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY
FOIA EXEMPT**

**NOT RELEVANT TO SELECTION
OF REMOVAL ACTION**

Attachment 1
Administrative Record
Inverse Investments Site Removal Action

U.S. Environmental Protection Agency
Removal Action

Administrative Record
for the
Inverse Investments Site
McHenry, McHenry County, Illinois

Original
April 11, 2014
SEMS ID:

| <u>NO.</u> | <u>SEMS ID</u> | <u>DATE</u> | <u>AUTHOR</u> | <u>RECIPIENT</u> | <u>TITLE/DESCRIPTION</u> | <u>PAGES</u> |
|------------|----------------|-------------|----------------------------------|--------------------------|--|--------------|
| 1 | 911826 | 4/29/13 | Everetts, B., EPA | Ribordy, M., U.S. EPA | Request for Consideration of a Time-Critical Removal Action at McHenry, Illinois | 2 |
| 2 | 911827 | 12/4/13 | Gracyrk, L., Weston Solutions | Zintak, L., U.S. EPA | Site Assessment Report for the Inverse Investment Site | 294 |
| 3 | | | Zintak, L., U.S. EPA | Karl, R., U.S. EPA | Action Memorandum re: Request for Approval of a Time-Critical Removal Action and for an Exemption to the 12- Month Statutory Limit at the Inverse Investments Site (PENDING) | |

ATTACHMENT 2

**DETAILED CLEANUP CONTRACTOR ESTIMATE
HAS BEEN REDACTED – ONE PAGE**

**NOT RELEVANT TO SELECTION
OF REMOVAL ACTION**

Attachment 3
Site Map
Inverse Investments Removal Action

ATTACHMENT 4

**INDEPENDENT GOVERNMENT COST ESTIMATE
HAS BEEN REDACTED – ONE PAGE**

**NOT RELEVANT TO SELECTION
OF REMOVAL ACTION**